

App. No. 10/711,262
Amendment dated December 8, 2005
Reply to Office action of September 8, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

Claims 1-10 (cancelled):

Claim 11 (previously presented): A method of qualitatively transforming a DLC film, the method comprising the step of irradiating with either a particle beam or an energy beam at least one region of the DLC film to raise the refractive index of that region, whereby a distributed refractive index structure is created within the DLC film.

Claim 12 (previously presented): A DLC film-transforming method as set forth in claim 11, wherein:

said particle beam is one selected from the group consisting of an ion beam, an electron beam, a proton beam, α -rays, or a neutron beam; and

said energy beam is one selected from the group consisting of light rays, X-rays or γ -rays.

Claims 13-21 (cancelled):

Claim 22 (previously presented): A DLC film-transforming method as set forth in claim 11, wherein the qualitative transformation is carried out on one selected from the group consisting of a hydrogen-containing DLC film, a nitrogen-containing DLC film, and a non-hydrogen-containing, non-nitrogen-containing DLC film.

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Claim 23 (previously presented): A DLC film-transforming method as set forth in claim 11, wherein the qualitative transformation is carried out on a DLC film having, with respect to light having a wavelength within a range of from 550 nm to 650 nm, a refractive index smaller than 1.6 and an extinction coefficient smaller than 1×10^{-3} .

Claim 24 (previously presented): A DLC film-transforming method as set forth in claim 11, wherein the DLC film is irradiated with either the particle beam or the energy beam at a bias with respect to the film's thickness, whereby the distributed refractive index structure is created sloping with respect to the film's thickness.

Claim 25 (currently amended): A DLC film characterized by having refractive indices distributed in a pattern oriented within the plane of the film, the DLC film including a plurality of qualitatively transformed regions in which the refractive indices are changed.

Claim 26 (previously presented): A DLC film characterized by having refractive indices distributed in a pattern oriented on a bias with respect to the thickness of the film.

Claim 27 (cancelled)

Claim 28 (new): A DLC film characterized by having a distributed refractive index pattern, the DLC film including a plurality of qualitatively transformed regions in which the refractive indices are changed, the DCL film created by a film-transforming method as set forth in claim 11.

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Claim 29 (new): A DLC film characterized by having a distributed refractive index pattern, the DLC film including a plurality of qualitatively transformed regions in which the refractive indices are changed, the DCL film created by a film-transforming method as set forth in claim 12.

Claim 30 (new): A DLC film characterized by having a distributed refractive index pattern, the DLC film including a plurality of qualitatively transformed regions in which the refractive indices are changed, the DCL film created by a film transforming method as set forth in claim 22.

Claim 31 (new): A DLC film characterized by having a distributed refractive index pattern created by a film-transforming method as set forth in claim 23.

Claim 32 (new): A DLC film characterized by having a distributed refractive index pattern created by a film-transforming method as set forth in claim 24.